APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/540,730	03/31/2000	Hans Eberle	1004-4255	1940

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EXAMINER
LEE, TIMOTHY L

ART UNIT	PAPER NUMBER
2697	

DATE MAILED: 07/07/2003

Please find below and/or attached an Office communication concerning this application or proceeding.

| Office Action Summary | Application No. 09/540,730 | Applicant(s) EBERLE ET AL. |
| | Examiner Timothy Lee | Art Unit 2697 |

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE _3_ MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.
- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☐ Responsive to communication(s) filed on _____ .

2a)☐ This action is **FINAL**.   2b)☒ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) _1-30_ is/are pending in the application.

    4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) _1-30_ is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☒ The drawing(s) filed on _31 March 2000_ is/are: a)☒ accepted or b)☐ objected to by the Examiner.

    Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

11)☐ The proposed drawing correction filed on _____ is: a)☐ approved b)☐ disapproved by the Examiner.

    If approved, corrected drawings are required in reply to this Office action.

12)☐ The oath or declaration is objected to by the Examiner.

Priority under 35 U.S.C. §§ 119 and 120

13)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

    a)☐ All b)☐ Some * c)☐ None of:

      1.☐ Certified copies of the priority documents have been received.

      2.☐ Certified copies of the priority documents have been received in Application No. _____ .

      3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

    * See the attached detailed Office action for a list of the certified copies not received.

14)☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application).

    a) ☐ The translation of the foreign language provisional application has been received.

15)☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☒ Information Disclosure Statement(s) (PTO-1449) Paper No(s) _2,5,6_ .
4) ☐ Interview Summary (PTO-413) Paper No(s). _____ .
5) ☐ Notice of Informal Patent Application (PTO-152)
6) ☐ Other: .

DETAILED ACTION

Claim Objections

1A.   Claim 20 is objected to because of the following informalities: Claim 20 refers to a

"second switch" that is only disclosed in claim 19, not in claim 18. The Examiner surmises that

claim 20 should be referring to claim 19 and not claim 18. Appropriate correction is required.

Claim Rejections - 35 USC § 102

1.   The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the

basis for the rejections under this section made in this Office action:

> A person shall be entitled to a patent unless –
>
> (e) the invention was described in (1) an application for patent, published under section 122(b), by another filed
> in the United States before the invention by the applicant for patent or (2) a patent granted on an application for
> patent by another filed in the United States before the invention by the applicant for patent, except that an
> international application filed under the treaty defined in section 351(a) shall have the effects for purposes of this
> subsection of an application filed in the United States only if the international application designated the United
> States and was published under Article 21(2) of such treaty in the English language.

2.   Claims 1-3, 6-11, 18, 19, and 29 are rejected under 35 U.S.C. 102(e) as being anticipated

by Lea (US 6,115,373).

3.   Regarding claims 1, 7, and 18, Lea discloses a network that employs unbuffered switches

that can handle both ATM and IP traffic. The unbuffered switches contain a plurality of input

and output ports for receiving and transmitting traffic—these ports would logically be connected

to nodes that are performing the receiving and transmitting (the switched network including a

buffer-less switch coupling the sending nodes and the receiving nodes). See at least col. 2, line

58-col. 3, line 4. It is inherent that packets would be transmitted from the sending nodes

connected to the input ports of the switch. The disclosure mentions nothing about changing the

forwarding rates of the incoming packets, so the system forwards the incoming packets at the

same rate that they were received. Regarding claims 7, 14, and 30 more specifically, Lea

discloses that transmissions are divided into four different classes. The non-interleaving of IP packets provides a number of advantages, including allowing packet-based discarding. See col. 3, line 58-col. 4, line 34. Since multiple inputs can request the same output, some traffic must from time to time be blocked. The controller decides which of competing requests to grant on the basis of the priority level of the incoming data (if a first and second packet simultaneously request a switch resource, selecting one of the first and second packet a winner and one a loser). Obviously, the packet that gets transmitted turns out to be the winner, and the one that gets discarded turns out to be the loser. See col. 5, lines 31-46.

4.   Regarding claims 2, 3, and 6, Lea discloses that an acknowledgment signal will be sent after data traffic reaches its destination. Lea also discloses that the acknowledgement has to be received before the next slot begins transmission, so there is a predetermined time that the acknowledgment signal has to be received in order for the source to know that the data was sent correctly. See col. 5, lines 47-62.

5.   Regarding claim 8, Lea discloses that each transmission "slot" contains information including destination bits which are used for path set-up at each stage. See col. 5, lines 8-16.

6.   Regarding claims 9 and 10, Lea discloses that when two inputs with the same priority request the same output link, the comparator will choose one of the two inputs randomly. See col. 5, lines 31-46. Lea also discloses that it is possible to add several stages of randomization nodes to evenly distribute the traffic. See col. 7, lines 46-62.

7.   Regarding claim 11, Lea does not disclose anything about pre-allocating buffer space in the buffer before the packet is sent.

8.   Regarding claim 19, Lea discloses that that network includes a plurality of unbuffered

switches, so there can be a first and second switch in the system connected to the various inputs

and outputs. See col. 2, lines 14-34.

9.   Regarding claim 29, Lea discloses that the unbuffered self-routing network can consist of

multiple stages. See col. 4, lines 45-56.

Claim Rejections - 35 USC § 103

10.   The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all

obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in
> section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are
> such that the subject matter as a whole would have been obvious at the time the invention was made to a person
> having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the
> manner in which the invention was made.

11.   Claims 4, 5, and 12 are rejected under 35 U.S.C. 103(a) as being unpatentable over Lea in

view of Jaffe et al. (US 5,359,320). The rejection of claims 3 and 11 also stand in this rejection.

Lea does not expressly disclose sending a negative acknowledgement packet when an error in

transmission is detected by the receiving node. Jaffe et al. discloses sending a NAK by the

receiving node to the transmitting node if the node was too busy to properly buffer the message

(NAK sent indicating packet associated with the buffer overflow was not successfully received).

See col. 5, line 60-col. 6, line 16. It would have been obvious to a person of ordinary skill in the

art at the time of the invention to use NAK signals to indicate that a receiving error had occurred.

One of ordinary skill in the art would have been motivated to do this because sending this NAK

signal would indicate to the transmitter that the transmission was not successful, so then the

transmitter can act accordingly to fix the problem.

12.   Claims 13 and 21-28 are rejected under 35 U.S.C. 103(a) as being unpatentable over Lea
in view of Charny et al. (US 6,072,772). The rejections of claims 1 and 18 also stand in this
rejection. Lea does not expressly disclose the sending nodes sending packets to send registers.
Charny et al. discloses various input links connected to input ports which are further connected
to input queues—these input buffers act as send registers by holding the data and acting as an
intermediary between the sending nodes and the switch itself. See col. 6, lines 12-20. The
acknowledgements can then be sent back to this intermediary to see if the packets were sent
properly—this could act as the status register. The rejections of claims 24-28 follow from
similar rejections of claims mentioned previously. It would have been obvious to a person of
ordinary skill in the art to use input buffers as send registers. One of ordinary skill in the art
would have been motivated to do this because this intermediary step could hold data and free up
the sending node from being responsible for this task, thus freeing it to perform other functions.

13.   Claims 14 and 30 are rejected under 35 U.S.C. 103(a) as being unpatentable over Lea.
This rejection is similar to the rejection of claim 1, so also refer to that rejection for the parts of
the two claims that are similar to claim 1. Lea does not expressly disclose forwarding packets on
a first come first served basis; however, it is well-known in the art that ATM supports constant
bit rate services. It would have been obvious to a person of ordinary skill in the art to have the
system of Lea support CBR. One would have been motivated to do this because Lea mentions
that there are four different classes of services, and one of those classes include real-time traffic,
and real-time traffic can depend on constant bit rate to transport data.

14.   Regarding claim 15, Lea discloses that when two inputs with the same priority request
the same output link, the comparator will choose one of the two inputs randomly. See col. 5,

lines 31-46. Lea also discloses that it is possible to add several stages of randomization nodes to evenly distribute the traffic. See col. 7, lines 46-62.

15.   Regarding claim 16, real-time traffic packets, which fall under Class 2 type traffic, can be considered low-latency packets. See col. 4, lines 5-9.

16.   Regarding claim 17, Lea discloses that an acknowledgment signal will be sent after data traffic reaches its destination. Lea also discloses that the acknowledgement has to be received before the next slot begins transmission, so there is a predetermined time that the acknowledgment signal has to be received in order for the source to know that the data was sent correctly. See col. 5, lines 47-62.
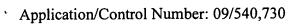
Conclusion

17.   The prior art made of record and not relied upon is considered pertinent to applicant's disclosure. Basilico (US 6,009,092), Smith (US 6,188,686) and Dighe et al. (US 5,042,032) disclose systems that include bufferless switching.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Timothy Lee whose telephone number is (703)305-7349. The examiner can normally be reached on M-F, 9-5.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Ricky Ngo can be reached on (703)305-4798. The fax phone numbers for the organization where this application or proceeding is assigned are (703)872-9314 for regular communications and (703)872-9314 for After Final communications.

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is (703)305-4700.

Art Unit: 2697

TLL
June 16, 2003

RICKY NGO
PRIMARY EXAMINER